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(54) **Compact-dot reproduction of scanned halftone screens**

(57) A method of reproducing a document including halftoned regions therein scans the document to generate scanned image data comprising a digitized representation of said document. The scanned image data that corresponds to the halftoned regions is then ren-

dered using a compact rendering process that includes positioning an observation window about a target pixel and a neighboring pixel; selecting a fill-order based upon a result of the analyzing step; and generating a high addressability pixel as a function of the selected fill-order.

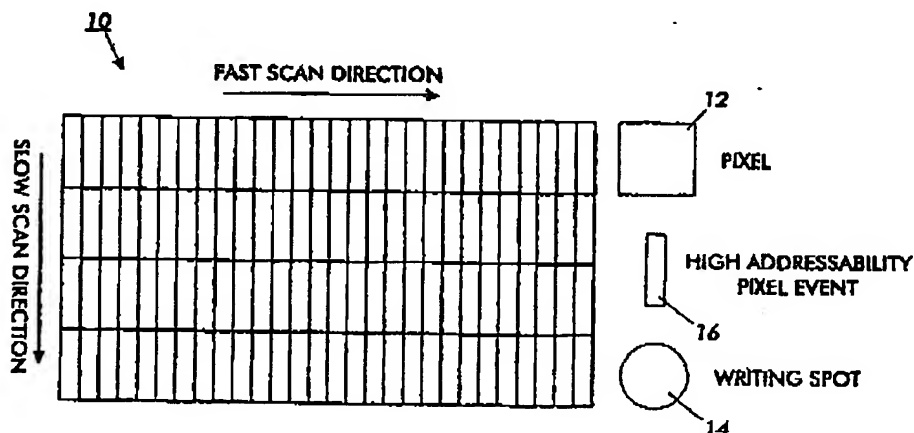


FIG. 1

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European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 00 11 3954

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Incl. 7)
X	US 5 802 209 A (TOSHIYUKI HATTORI ET AL.) 1 September 1998 (1998-09-01)	1-5	H04N1/405
Y	* the whole document *	6-10	
A	DE 28 12 821 A (INTERNATIONAL BUSINESS MACHINES CORP.) 5 October 1978 (1978-10-05)		
A	JP 08 317210 A (CANON KK) 29 November 1996 (1996-11-29)		
P, A, L	& US 5 982 508 A (ATSUSHI KASHIHARA) 9 November 1999 (1999-11-09) (patent document in English corresponding to patent document in Japanese)		
A	US 5 659 634 A (T. I. YEH ET AL.) 19 August 1997 (1997-08-19)		
A	US 4 084 196 A (J. G. TISUE ET AL.) 11 April 1978 (1978-04-11)		
A	US 5 006 937 A (HIROSHI NONOSHITA ET AL.) 9 April 1991 (1991-04-09)		TECHNICAL FIELDS SEARCHED (Incl. 7) H04N
Y	EP 0 774 855 A (XEROX CORP.) 21 May 1997 (1997-05-21) * column 7, line 35 - column 9, line 27 *	6-9	
Y	US 4 288 821 A (P. A. LAVALLEE ET AL.) 8 September 1981 (1981-09-08) * column 3, line 13 - line 49 *	10	
The present search report has been drawn up for all claims.			
Place of search THE HAGUE		Date of completion of the search 18 February 2002	Examiner De Roeck, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date O : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document	

EPO FORM 1511 (01/02) (P04001)

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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18-02-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5802289 A	01-09-1998	JP 9074485 A	18-03-1997
		DE 69612839 D1	19-04-2001
		DE 69612839 T2	08-11-2001
		EP 0751676 A2	02-01-1997
DE 2812821 A	05-10-1978	US 4150400 A	17-04-1979
		US 4124870 A	07-11-1978
		BE 864353 A1	16-06-1978
		BR 7802022 A	17-04-1979
		CA 1089770 A1	18-11-1980
		CH 629348 A5	15-04-1982
		DE 2812821 A1	05-10-1978
		FR 2386213 A1	27-10-1978
		GB 1595004 A	05-08-1981
		IT 1109994 B	23-12-1985
		JP 1255431 C	12-03-1985
		JP 53122310 A	25-10-1978
		JP 59032025 B	06-08-1984
		NL 7803228 A	03-10-1978
		AU 509797 B2	22-05-1980
		AU 3223078 A	12-07-1979
		CA 1121902 A1	13-04-1982
		ES 468341 A1	16-11-1978
		GB 1595003 A	05-08-1981
		JP 1255432 C	12-03-1985
JP 08317210 A	29-11-1996	US 5982508 A	09-11-1999
US 5659634 A	19-08-1997	DE 69524520 D1	24-01-2002
		EP 0705026 A1	03-04-1996
		JP 8112947 A	07-05-1996
US 4084196 A	11-04-1978	DE 2803213 A1	03-08-1978
		JP 53096616 A	24-08-1978
US 5006937 A	09-04-1991	JP 62133576 A	16-06-1987
		JP 62134774 A	17-06-1987
		JP 62150987 A	04-07-1987
		JP 62150482 A	04-07-1987
		DE 3641592 A1	11-06-1987
		FR 2591367 A1	12-06-1987
		FR 2605771 A1	29-04-1988

EPO FORM P068

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

EP 1 067 765 A3

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 3954

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
This members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for those particulars which are merely given for the purpose of information.

18-02-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 774855 A	21-05-1997	US 5742788 A	21-04-1998
		EP 8774855 A2	21-05-1997
		JP 9186856 A	15-07-1997
US 4288821 A	08-09-1981	CA 1166344 A1	24-04-1984
		DE 3163963 D1	12-07-1984
		EP 0041400 A1	09-12-1981
		JP 57024166 A	08-02-1982

EPO FORM P/499

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82